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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
VERDIER, CHRISTOPHER M	

ART UNIT	PAPER NUMBER
3745	

DATE MAILED: 12/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.: 10/728,270	Applicant(s): BAGAI, ASHISH	
	Examiner: Christopher Verdier	Art Unit: 3745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *04 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *12-4-03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Specification

The disclosure is objected to because of the following informalities: Appropriate correction is required.

In paragraph 6, lines 2 and 6, "off set" should be changed to -- offset --

In paragraph 17, second to last line, -- of -- should be inserted after "direction" (first occurrence).

Claim Objections

Claims 8-13 are objected to because of the following informalities: Appropriate correction is required.

In claim 8, line 2, and claim 13, line 2, the quotation remarks around the term "smart" should be removed.

In claim 9, line 3, -- to -- should be inserted after "relative".

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 1, last line recites "to deflect said trailing edge flap in response thereto". This phrase is incomplete and unclear, because it is not clear whether Applicant intends for "in response thereto" to be construed that the trailing edge flap is responsive to the servo flap, which

is incomplete because there is no movement recited in the phrase "in response thereto", or if Applicant intends for "in response thereto" to be construed that the trailing edge flap is responsive to the deflection of the servo flap. It is respectfully submitted that "in response thereto" could be changed to -- in response to the deflection of the trailing edge servo flap -- in order to clarify the claim. Claim 9, last two lines, and claim 14, last line, which recite "in response thereto", are indefinite for the same reasons. It is respectfully submitted that "in response thereto" could be changed to -- in response to the deflection of the trailing edge servo flap -- in order to clarify claims 9 and 14.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, as far as they are definite, are rejected under 35 U.S.C. 102(b) as being anticipated by World Order Patent WO 02/094655 (figure 1). Note the rotor blade assembly comprising a rotor blade 1 that defines a blade radius between an unnumbered axis of rotation and an unnumbered blade tip, a trailing edge flap 3 pivotally mounted to the rotor blade at 15, 17, and a trailing edge servo flap 5 linked to the trailing edge flap, with the trailing edge servo flap 5 being selectively deflectable to deflect the trailing edge flap 3 in response to the deflection of the trailing edge servo flap. The trailing edge flap positions the rotor blade about a rotor blade

pitch axis 29. The trailing edge servo flap 5 deflects in a first position (up) to deflect the trailing edge flap in a direction opposite the first direction (down); see page 4, lines 28-30. The trailing edge servo flap deflects about a trailing edge servo flap pitch axis 25, 27 and the trailing edge flap deflects about a trailing edge flap pitch axis 15, 17, with the trailing edge servo flap pitch axis being displaced chordwise from the trailing edge flap pitch axis.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-2 and 9, as far as they are definite, are rejected under 35 U.S.C. 103(a) as being unpatentable over Toulmay 6,530,542 in view of Poccard 4,715,567. Toulmay (figures 1-2) discloses a rotor blade assembly substantially as claimed comprising a rotor blade 5.i that defines a blade radius between an axis of rotation Z-Z and an unnumbered blade tip, a trailing edge flap 6.j pivotally mounted to the rotor blade at 9 and deflectable about trailing edge flap pitch axis 9 relative to the rotor blade, and a trailing edge servo flap 6.j (located radially outboard of the trailing edge flap), with the trailing edge servo flap 6.j being selectively deflectable about a trailing edge servo flap pitch axis 9. The trailing edge flap positions the rotor blade about a rotor blade pitch axis 10. However, Toulmay does not disclose that the trailing edge servo flap is

linked to the trailing edge flap, such that the trailing edge flap is deflected in response to the deflection of the trailing edge servo flap.

Poccard shows an aircraft wing flap coupling system, whereby a trailing edge servo flap 6 is linked to a trailing edge flap 5 via a mechanical coupling 12, such that the trailing edge flap is deflected in response to the deflection of the trailing edge servo flap, for the purpose of ensuring synchronized operation of the trailing edge servo flap and the trailing edge flap.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to form the rotor blade assembly of Toulmay such that the trailing edge servo flap is linked to the trailing edge flap, such that the trailing edge flap is deflected in response to the deflection of the trailing edge servo flap, as taught by Poccard, for the purpose of ensuring synchronized operation of the trailing edge servo flap and the trailing edge flap. Although Poccard is directed towards a fixed wing aircraft and Toulmay is directed to a rotary blade assembly on an aircraft, it would have been obvious to apply the teachings of Poccard to the rotary blade assembly of Toulmay, because it is known in the art that movable flaps on fixed wings of aircraft and movable flaps on rotary blades of aircraft are analogous and generally interchangeable.

Claims 1-2, 4, and 9, as far as they are definite, are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamakawa 5,639,215 in view of Poccard 4,715,567. Yamakawa (figure 3c) discloses a rotor blade assembly substantially as claimed comprising a rotor blade 11 that

defines a blade radius between an axis of rotation C and an unnumbered blade tip, a trailing edge flap 13 pivotally mounted to the rotor blade at 14 and deflectable about trailing edge flap pitch axis 14 relative to the rotor blade, and a trailing edge servo flap 13 (located radially outboard of the trailing edge flap), with the trailing edge servo flap 13 being selectively deflectable about a trailing edge servo flap pitch axis 14. The trailing edge flap positions the rotor blade about a rotor blade pitch axis (see column 1, lines 15-16). The trailing edge servo flap pitch axis is displaced chordwise from the trailing edge flap pitch axis. However, Yamakawa does not disclose that the trailing edge servo flap is linked to the trailing edge flap, such that the trailing edge flap is deflected in response to the deflection of the trailing edge servo flap.

Poccard shows an aircraft wing flap coupling system, whereby a trailing edge servo flap 6 is linked to a trailing edge flap 5 via a mechanical coupling 12, such that the trailing edge flap is deflected in response to the deflection of the trailing edge servo flap, for the purpose of ensuring synchronized operation of the trailing edge servo flap and the trailing edge flap.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to form the rotor blade assembly of Yamakawa such that the trailing edge servo flap is linked to the trailing edge flap, such that the trailing edge flap is deflected in response to the deflection of the trailing edge servo flap, as taught by Poccard, for the purpose of ensuring synchronized operation of the trailing edge servo flap and the trailing edge flap. Although Poccard is directed towards a fixed wing aircraft and Yamakawa is directed to a rotary blade assembly on an aircraft, it would have been obvious to apply the teachings of Poccard to

the rotary blade assembly of Yamakawa, because it is known in the art that movable flaps on fixed wings of aircraft and movable flaps on rotary blades of aircraft are analogous and generally interchangeable.

Claims 1-4, as far as they are definite, are rejected under 35 U.S.C. 103(a) as being unpatentable over Head 5,626,312 in view of Johnston 2,980,367. Head (figures 5A-5B) discloses a rotor blade assembly substantially as claimed comprising a rotor blade 31 that defines a blade radius between an unnumbered axis of rotation and an unnumbered blade tip, a trailing edge flap 35 pivotally mounted to the rotor blade at 36, and a trailing edge servo flap 37 linked to the trailing edge flap at 38, with the trailing edge servo flap 37 being selectively deflectable. The trailing edge flap positions the rotor blade about a rotor blade pitch axis 33. The trailing edge servo flap deflects about a trailing edge servo flap pitch axis 38 and the trailing edge flap 35 deflects about a trailing edge flap pitch axis 36, with the trailing edge servo flap pitch axis being displaced chordwise from the trailing edge flap pitch axis. However, Head does not disclose that the trailing edge servo flap is selectively deflectable to deflect the trailing edge flap in response to the deflection of the trailing edge servo flap, such that the trailing edge flap is deflected in a second direction in response to the deflection of the trailing edge servo flap in a first direction that is opposite the second direction.

Johnston shows an aircraft wing flap coupling system, whereby a trailing edge servo flap 3 is linked to a trailing edge flap 1 via a push-rod 12, such that the trailing edge flap is deflected in a second direction in response to the deflection of the trailing edge servo flap in a first

direction that is opposite the second direction, for the purpose of providing an amount of flap static balance to be selected independently of an amount of flap dynamic balance, and providing an inertial balance linked to the flap that prevents or suppresses flutter.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to form the rotor blade assembly of Head such that the trailing edge servo flap is selectively deflectable to deflect the trailing edge flap in response to the deflection of the trailing edge servo flap, such that the trailing edge flap is deflected in a second direction in response to the deflection of the trailing edge servo flap in a first direction that is opposite the second direction, as taught by Johnston, for the purpose of providing an amount of flap static balance to be selected independently of an amount of flap dynamic balance, and providing an inertial balance linked to the flap that prevents or suppresses flutter. Although Johnston is directed towards a fixed wing aircraft and Head is directed to a rotary blade assembly on an aircraft, it would have been obvious to apply the teachings of Johnston to the rotary blade assembly of Head, because it is known in the art that movable flaps on fixed wings of aircraft and movable flaps on rotary blades of aircraft are analogous and generally interchangeable.

Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Roeseler is cited to show an aircraft control arrangement whereby a trailing edge servo flap and a trailing edge flap are linked together.

Vaughen is cited to show a rotary blade with plural trailing edge flaps which cause blade pitch change about a blade pitch axis.

Hays is cited to show a rotary blade with plural spring biased trailing edge flaps.

Allowable Subject Matter

Claim 14 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

Claims 5-8, 10-13, and 15-17 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher Verdier whose telephone number is (571) 272-4824. The examiner can normally be reached on Monday-Friday from 10:00-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward K. Look can be reached on (571) 272-4820. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

C.V.
December 9, 2004

Christopher Verdier
Primary Examiner
Art Unit 3745